

PATENT COOPERATION TREATY

PCT

INTERNATIONAL-TYPE SEARCH REPORT

(PCT Article 15.5)

National application No. 0301201-0	Country or Office of filing SE	Applicant's or agent's file reference P 03-124
Filing date (<i>day/month/year</i>) 24 April 2003		(Earliest) Priority Date (<i>day/month/year</i>)
Applicant St Jude Medical AB		

Date of request for international-type search 24 April 2003	International-type search request No. SE 03/00313
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This international-type search report has been prepared by this International Searching Authority and is transmitted to the applicant.

This international-type search report consists of a total of 6 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).

2. ☒ Unity of invention is lacking (See Box II).

3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international-type search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international-type search report has not been established in respect of certain claims for the following reasons:

1. ☐ Claims No.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims No.:
because they relate to parts of the national application that do not comply with the prescribed requirements to such an extent that no meaningful international-type search can be carried out, specifically:

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this application, as follows:

The requisite unity of invention (Rule 13.1 PCT) does not exist inasmuch as a technical relationship involving one or more of the same or corresponding special technical features in the sense of Rule 13.2 PCT does not exist between the subject-matter of the following groups of dependent claims:

.../...

1. ☐ As all required additional search fees were timely paid by the applicant, this international-type search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international-type search report covers only those claims for which fees were paid, specifically claims No.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international-type search report is restricted to the invention first mentioned in the claims, it is covered by claims No.:

1-4, 17

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

1. Claim 5-8, 14-16

An apparatus for analysing cardiac events comprising means for decisions in clustering, and means for associating the clusters with specific cardiac rhythms.

2. Claim 9

An apparatus for analysing cardiac events comprising an integrating means to integrate over a predetermined period of time.

3. Claims 10-13

An apparatus for analysing cardiac events comprising means for creating and updating clusters.

Prior art has been defined as:

Document D1: WO9739681 A1

First invention:

From a comparison of claim 1 and the prior art, the following technical features can be seen to make a contribution over the prior art (Rule 13.2 PCT):

Claims 2-4:

A means for extracting features, which uses the signal morphology.

From these technical features, the objective problem to be solved is how to extract features that can be used e.g. for clustering.

Second invention:

From a comparison of claim 1 and the prior art, the following technical features can be seen to make a contribution over the prior art (Rule 13.2 PCT):

Claims 5-8 and 14-16:

Means for making clustering decisions, based on a minimum distance criteria.

From these technical features, the objective problem to be solved is how to make decisions in clustering.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

Third invention:

From a comparison of claim 1 and the prior art, the following technical features can be seen to make a contribution over the prior art (Rule 13.2 PCT):

Claim 9:

Integrating means to integrate the signal over a predetermined period of time.

From these technical features, the objective problem to be solved is how to distinguish irregular rhythms, see the description page 3.

Fourth invention:

From a comparison of claim 1 and the prior art, the following technical features can be seen to make a contribution over the prior art (Rule 13.2 PCT):

Claims 10-13:

Means for creating and updating clusters.

From these technical features, the objective problem to be solved is how to minimise cluster contamination.

A comparison of the objective problems 1, 2 and 4, seen in the light of the description and the drawings of the present application, indicates that there is no technical correspondence between these problems (Rule 13.1 PCT); nor do they show any corresponding technical effect, so that the Special Technical Features of inventions 1, 2 and 4 fail to demonstrate any common technical features, thus not satisfying Rule 13.2 PCT.

Invention 3 solves similar problems to invention 1. However, invention 3 does not show any corresponding technical effect, so that the Special Technical Features of invention 3 demonstrate a correspondence with the Special Technical Features of invention 1, thus not satisfying (Rule 13.2 PCT).

INTERNATIONAL TYPE SEARCH REPORT

Search request No.

SE 03/00313

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61B 5/0452, A61N 1/39

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61B, A61N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, INSPEC, MEDLINE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9739681 A1 (THE REGENTS OF THE UNIVERSITY OF MICHIGAN), 30 October 1997 (30.10.97), page 9, line 3 - line 7; page 10, line 25 - line 31 --	1-4,17
X	US 5271411 A (KENNETH L. RIPLEY ET AL), 21 December 1993 (21.12.93), column 1, line 17 - line 34, abstract --	1-4,17
A	US 5638823 A (METIN AKAY ET AL), 17 June 1997 (17.06.97), column 1, line 60 - column 2, line 4; column 4, line 25 - line 30, abstract --	1-4,17

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international-type search

15 December 2003

Date of mailing of the international-type search report

2003 -12- 19

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INTERNATIONAL TYPE SEARCH REPORT

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>Michael A. Unser et al "Wavelet Applications in Signal and Image Processing IV". PROCEEDINGS, SPIE -The International Society for Optical Engineering. 6-9 August 1996, Volume 2825, part two of two parts INSPEC, AN 5491968, page(s) 812-821. see sections 2.2, 3.2, 5</p> <p style="text-align: center;">-- -----</p>	1-4,17

INTERNATIONAL TYPE SEARCH REPORT
Information on patent family members

06/09/03

Search request No.

SE 03/00313

WO	9739681	A1	30/10/97	AU	2807597 A	12/11/97
				US	5797399 A	25/08/98
US	5271411	A	21/12/93	JP	3224569 B	29/10/01
				JP	6022915 A	01/02/94
US	5638823	A	17/06/97	CA	2202860 A	06/03/97
				EP	0793442 A	10/09/97
				WO	9707733 A	06/03/97